

## CLAIMS

1. 1. Composite sample support for the mass spectrometric analysis of samples with  
2. ionization by matrix-assisted laser desorption, comprising  
3. (a) a mechanically very stable substructure manufactured to a high level of  
4. precision and  
5. (b) a removable, relatively thin plastic cover of uniform thickness to take up  
6. the samples.
1. 2. Composite sample support according to Claim 1 wherein the substructure can be  
2. used again by removing the plastic cover, whereas the plastic cover is usually  
3. used only once.
1. 3. Composite sample support according to Claim 1 wherein the plastic cover is  
2. fastened to the substructure by special fastening elements.
1. 4. Composite sample support according to Claim 1 wherein the substructure is  
2. provided with fastening elements which are used to fasten the plastic cover.
1. 5. Composite sample support according to Claim 1 wherein the plastic cover has  
2. fastening elements which are used to fasten the plastic cover to the substructure.
1. 6. Composite sample support according to Claim 5 wherein the plastic cover has a  
2. continuous or interrupted edge strip which is used to fasten the edge around the  
3. surface of the substructure and is anchored into a groove on the front.
1. 7. Composite sample support according to Claim 1 wherein the plastic cover is  
2. slightly concave so that it lies flush on the surface of the substructure after being  
3. pressed down and secured by the fastening elements.
1. 8. Composite sample support according to Claim 1 wherein the substructure has  
2. pump channels leading to the surface which ease evacuation of the space  
3. between the substructure and the plastic cover.
1. 9. Composite sample support according to Claim 1 wherein the substructure carries  
2. a machine-readable identifier.

- 1 10. Composite sample support according to Claim 9 wherein the identifier consists of  
2 an optical code.
- 1 11. Composite sample support according to Claim 9 wherein the identifier is stored in  
2 a transponder.
- 1 12. Composite sample support according to Claim 11 wherein part of the identifier in  
2 the transponder contains a permanent code which identifies the sample support  
3 and a code which can be overwritten and which may contain data relating to the  
4 sample support, the current cover, the processing status of the samples on the  
5 sample support, and the files containing data for the process control of the  
6 analytical methods relating to the samples.
- 1 13. Composite sample support according to Claim 1 wherein the plastic cover carries  
2 a machine-readable identifier.
- 1 14. Composite sample support according to Claim 1 wherein the substructure  
2 contains holes or grooves on the side to enable the robot to grip the substructure.
- 1 15. Composite sample support according to Claim 1 wherein the plastic cover cannot  
2 be used again after it has been removed.
- 1 16. Composite sample support according to Claim 1 wherein the outer shape of the  
2 composite sample support has the same outer dimensions as a microtitre plate.
- 1 17. Composite sample support according to Claim 1 wherein the plastic cover is  
2 made from an electrically conductive material.
- 1 18. Composite sample support according to Claim 1 wherein the surface of the  
2 plastic cover is metallized.
- 1 19. Composite sample support according to Claim 1 wherein the plastic cover has a  
2 hydrophobic surface.

- 1 20. Composite sample support according to Claim 1 wherein the plastic cover has a
- 2 grid of anchor sites, each being more hydrophilic than the surrounding
- 3 hydrophobic field.
- 1 21. Composite sample support according to Claim 20 wherein the anchor sites
- 2 consist of a pre-prepared matrix substance.
- 1 22. Composite sample support according to Claim 20 wherein the plastic cover
- 2 contains optically recognizable markers which are located at fixed distances from
- 3 the anchors.
- 1 23. Composite sample support according to Claim 1 wherein the sample sites on the
- 2 plastic cover are pre-prepared and coated with a matrix substance.
- 1 24. Composite sample support according to Claim 1 wherein sites on the plastic
- 2 cover consist of chemically functionalized groups.
- 1 25. Composite sample support according to Claim 1 wherein the substructure
- 2 contains structures for fitting auxiliary means for removing the plastic cover.